

ABSTRACT

A flexible optical element adopting liquid crystals (LCs) as the materials for realizing electrically tunable optics is foldable. A method for manufacturing the flexible element includes patterned photo-polymerization. The LC optics can include a pair of LC layers with orthogonally aligned LC directors for polarizer-free properties, flexible polymeric alignment layers, flexible substrates, and a module for controlling the electric field. The lens power of the LC optics can be changed by controlling the distribution of electric field across the optical zone. Lens power control can be provided using combinations of electrode configurations, drive signals and anchoring strengths in the alignment layers.

FIG. 14